C.T.M. Mini Power Chair

HS-1000 User's Manual

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INTRODUCTION

Thank you and congratulation on purchasing your new C.T.M. Power Chair. It is designed to provide you with transportation ability indoors and outdoors.

We pride ourselves on providing safe and comfortable products. Our goal is to ensure your complete satisfaction with our product. We are certain that you will enjoy your C.T.M. power chair.

Please read and observe all warning and instruction provided in owner's manual before operating with this power chair. Also, retain this booklet for future reference.

If you have any questions, please contact your local dealer or:

C.T.M.HOMECARE PRODUCT, INC.
6191 Schaefer Ave Suite B Chino CA 91710
Tel : +909-590-1388 Fax : +909-590-3365
E-Mail : ctm@ctmhomecare.com http : //www.ctmhomecare.com

or your local dealer:

IMPORTANT PRECAUTIONS

- Only one person at a time can ride a C.T.M. Power chair.
- Maximum load is 135 kg/300 lbs.
- Turn off power before getting on or off your power chair.
- Always drive carefully with your feet on footplate and be aware of others in your area.
- Always use pedestrian crossings wherever possible. Take extreme care when crossing roads.
- Do not drive on slopes exceeding 8 degrees, and take extreme care when turning on slopes.
- Do not use full power when turning to sharp corners.
- Take great care and drive in low speeds when backing up, riding downhill or on uneven surfaces and climbing curb.
- The power chair may not operate well in high humidity.
- Never put your power chair in neutral when staying on slopes.
- Follow all traffic laws when riding in the vicinity of public roads.

ELECTROMAGNETIC INTERFERENCE AND WARNINGS

CAUTION: It is very important that you read this information regarding the possible effects of Electromagnetic Interference on your power chair.

Powered wheelchairs and motorized scooters may be susceptible to electromagnetic interference (EMI), which is interfering electromagnetic energy (EM) emitted from sources such a radio stations, TV stations, amateur radio (HAM) transmitters, two-way radios, and cellular phones. The interference (from radio wave sources) can cause the motorized scooter to release its brakes, move by itself, or move in unintended directions. It can also permanently damage the motorized scooter control system. The intensity of the interfering EM energy can be measured in volts per meter (V/m). Each motorized scooter can resist EMI up to a certain intensity. This is called its "immunity level." The higher the immunity level, the greater the protection will be. At this time, current technology is capable of achieving at least a 20 V/m immunity level, which would provide useful protection from the more common sources of radiated EMI. The immunity level of this motorized scooter model is not known.

There are a number of sources of relatively intense electromagnetic fields in the everyday environment. Some of these sources are obvious and easy to avoid. Others are not apparent and exposure is unavoidable. However, we believe that by following the warnings listed below, your risk to EMI will be minimized.

The sources of radiated EMI can be broadly classified into three types :

1.Hand-held portable transceivers (transmitters-receivers) with the antenna mounted directly on the transmitting unit. Examples include: citizens band (CB) radios, "walkie talkie," security, fire, and police transceivers, cellular telephones, and other personal communication devices.

> ⚠ **Some cellular telephones and similar devices transmit signals while they are ON, even when not being used.**

2.Medium-range mobile transceivers, such as those used in police cars, fire trucks, ambulances, and taxis. These usually have the antenna mounted on the outside of the vehicle.

3.Long-range transmitters and transceivers such as commercial broadcast transmitters (radio and TV broadcast antenna towers) and amateur (HAM) radios.

> ⚠ Other types of hand-held devices, such as cordless phones, laptop computers, AM/FM radios, TV sets, CD players, and cassette players, and small appliances, such as electric shavers and hair dryers, so far as we know, are not likely to cause EMI problems to your motorized scooter.

Power Chair Electromagnetic Interference :

Because EM energy rapidly becomes more intense as one moves closer to the transmitting antenna (source), the EM fields from hand-held radio wave sources (transceivers) are of special concern. It is possible to unintentionally bring high levels of EM energy very close to the power chair control system while using these devices. This can affect power chair movement and braking. Therefore, the warnings listed below are recommended to prevent possible interference with the control system of the power chair.

Warnings :

Electromagnetic interference (EMI) from sources such as radio and TV stations, amateur radio (HAM) transmitters, two-way radios, and cellular phones can affect the power chair. Following the warnings listed below should reduce the chance of unintended brake release or power chair movement, which could result in serious injury.

1.Do not operate hand-held transceivers (transmitters-receivers), such as citizens band (CB) radios, or turn ON personal communication devices, such as cellular phones, while the power chair is turned ON;

2.Be aware of nearby transmitters, such as radio or TV stations, and try to avoid coming close to them;

3.If unintended movement or brake release occurs, turn the power chair OFF as soon as it is safe;

4.Be aware that adding accessories or components, or modifying the power chair, may make it more susceptible to EMI; and

5.Report all incidents of unintended movement or brake release to the distributor listed on the inside front cover of this manual. Note whether there is a source of EMI nearby.

Important Information

1.20 volts per meter (V/m) is a generally achievable and useful immunity level against EMI (as of May 1994). The higher the level, the greater the protection.

2.The immunity level of this product is 20 (V/m).

IDENTIFICATION OF PARTS

Before attempting to drive this power chair on your own, it is important that you familiarize with controls and how to operate.

Width Adjustable Armrests
18" Mid-Back Swivel Seat w/ Adj. Headrest & Seat Belt
Extended Footplate with 3-Angle Adjustment
Zero Effort Single Free Wheel Lever
Flat Free Tires

Figure 1 - HS-1000 Power Chair Front View

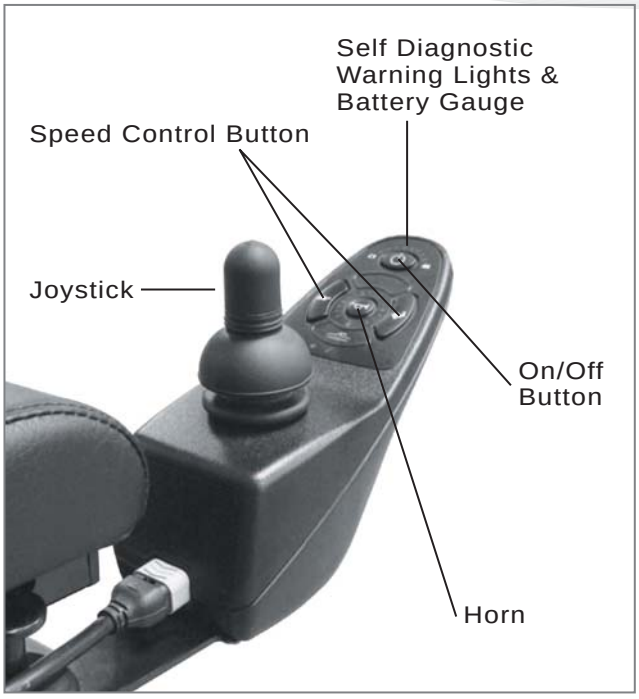

Figure 2 - HS-1000 Joystick

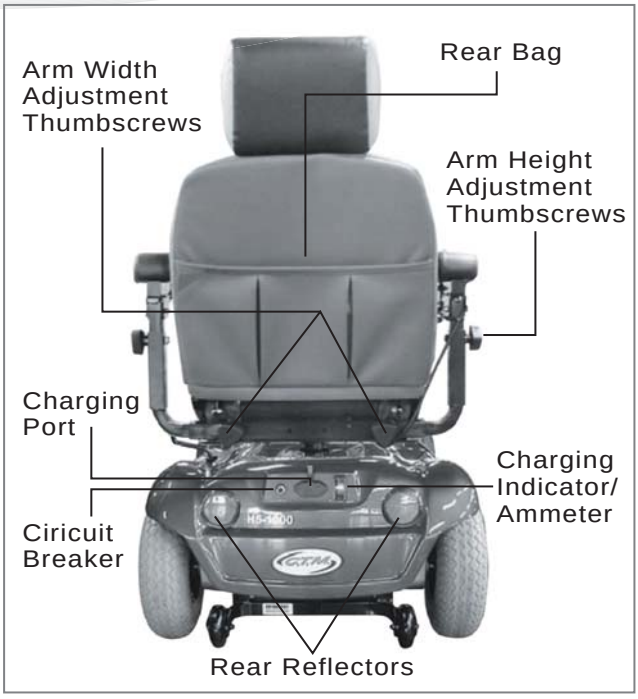

Figure 3 - HS-1000 Power Chair Rear View

JOYSTICK :

• Speed Dial Knob
By turning knob clockwise, you could increase speed. Turning knob counterclockwise will decrease speed.

• Self Diagnostic Warning Lights
Flashing of lights indicates there is a problem within power chair. See page 18 for more information.

• Battery Gauge
There are six LED lights on joystick. When all LED lights are on, batteries are fully charged; when few of lights are lighting batteries need to be recharged.

• Swing Away Bracket
The joystick is able to extend and retract. With joystick retracted, this enables you to pull up to any table.

Figure 4

ARMREST :

• Armrest width Adjustment Thumbscrews
Loosen two thumbscrews to adjust armrest width; tighten again to lock in desired position.

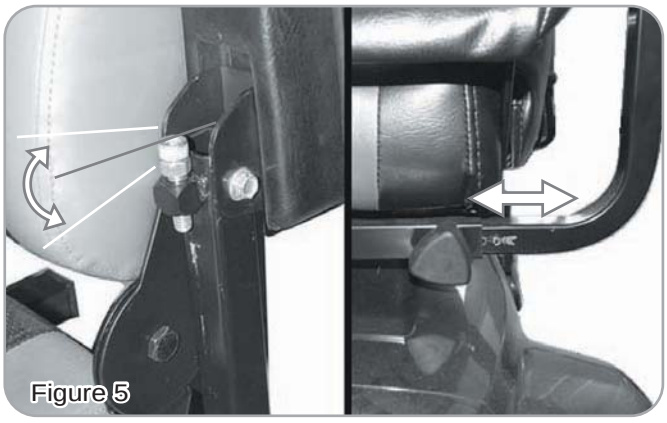
Figure 5

FOOTPLATE :

• Footplate

The footplate can be adjusted according to your specific needs. It can be adjusted vertically or horizontally. To adjust footplate, loosen screw (A) and arrange height to desired position, then, tightened screw (A) to secure plate in place.

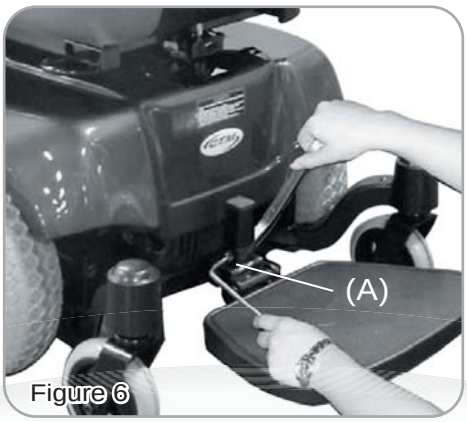

Figure 6

POWER BASE :

• Free-Wheeling Lever

When lever is in N (Neutral) position, power chair can be moved manually.
When lever is in D (Drive) position, power chair can be driven. Normal position is D.

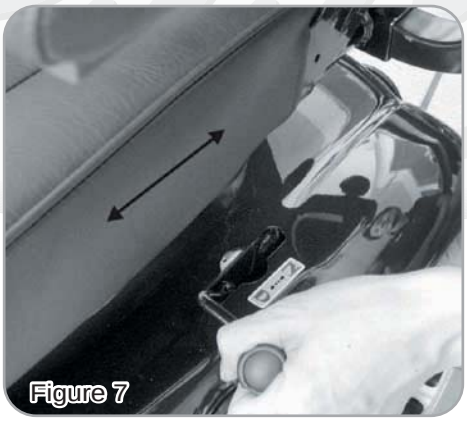
Figure 7

• Circuit Breaker

This is to protect your power chair from overloaded current within the electrical parts. If power chair suddenly stops, push circuit breaker (A) back in will help resolve this problem.

• Charging port

When charging your power chair, use power cord provided. To correctly charge your power chair, connect one end to power chair (B) and the other end to a wall outlet. See Charging the Batteries, page 14 for further instructions.

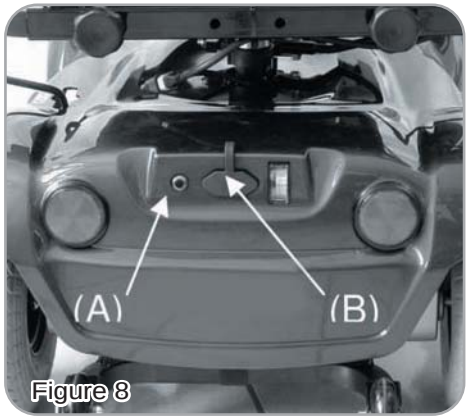

Figure 8

OPERATING YOUR SCOOTER

Before beginning your journey with your new power chair, make sure power chair is on a level surface and clear of any obstacle. Although your power chair is able to climb slopes, it is safer to practice on a leveled surface.

1.Before operating with your power chair, check the following:
- free-wheeling lever is on D.
- speed dial is at the lowest speed (fully turned counterclockwise).

2.Sit on chair and fasten seatbelt.

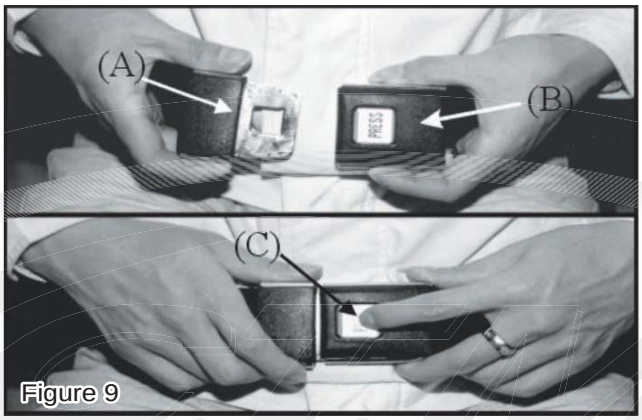

Figure 9

3.When power is turned on, all battery gauge LED lights should be lit lighting. The self-diagnostic warning lights should not be blinking.

4.While resting your arm on armrests, joystick should be within reach. By pushing joystick slightly forward, power chair will move forward slowly, and pushing joystick fully forward, chair will move at normal speed. And adjusting speed dial will also decrease or increase speed. Also, with joystick, you are able to turn chair in 360°. When joystick is let go and back in center position, chair will stop.

Figure 10

5.Practice driving where there is no obstacle. Start at slowest speed and move forward and backward; make some turns. As you get more comfortable, you can increase the speed by turning speed dial knob clockwise.

6.When the Battery Gauge is lighting in only few sections, you should plan to recharge the batteries very soon.

7.If power chair suddenly stops, and does not function, locate circuit breaker at the rear of power chair, then push it in and try driving again.

Figure 11

8.When you are finished riding, turn power off before getting out. For safety it is recommended you lift armrest first and get out from side.

Release knob (D) to adjust to desired height then tighten knob (D).

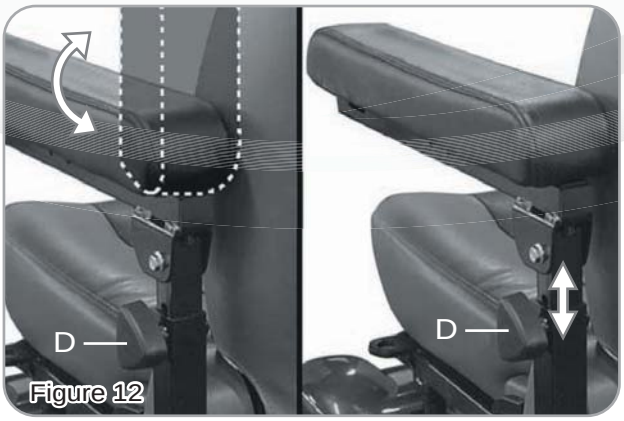

Figure 12

While standing up, avoid stepping on footplate as it may cause injury.

9.If you are finished riding for the day, immediately recharge batteries.
See **CHARGING THE BATTERIES** on page 14.

Keep in mind these rules :

- Use your power chair only where it is safe for walking.
- Drive in low speed when reversing, riding downhill on ramp or curb or on uneven surface.

Other Operating Information :

Hill climbing : You may need to use a higher speed. For a higher speed, turn speed dial clockwise.

Down slopes : Proceed with dawnward slope slowly, and turn speed dial counterclockwise. This enables good control when speed is set in slower motion. However, your power chair will not self accelerate down hills due to. automatic braking, taking effect should you attempt to drive too fast.

Curb climbing : Approach slowly from right angles to the curb. A direct approach is needed. Do not attempt greater than a 2" curb.

If Self-Diagnostic Warning Lights start to flash, identify problem from chart on page 18 and take action.

If power chair breaks down and must be moved, please follow below directions :

1.Get off power chair.
2.Push free-wheeling lever to N.
3.Move power chair slowly to a safe location.
4.Push free-wheeling lever back to D.

DISASSEMBLING / RE-ASSEMBLING YOUR POWER CHAIR

Taking apart your power chair enables you to save space when keeping it in storage or carrying it along in your vehicle. Having power chair disassembled is easier than ever since no tools are required.

Seat Removal :

Please follow instructions below to remove seat from power base.

1.Unplug joystick cable at rear of power chair.(See Fig. 13)

2.Bend chair back forward and press lock pins underneath front and along seat sides to unlock, then lift chair up to remove.(See Fig. 14)

Figure 13

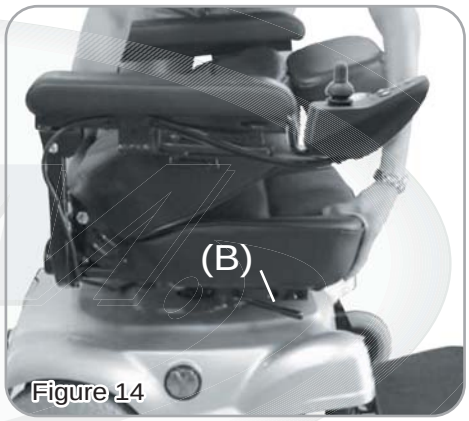

Figure 14

Body Shroud Removal :

3.Removing shroud also requires no tools.

4.Make sure free-wheeling lever is set to D so motors are engaged. (See Fig. 15) The shroud is held by Velcro and is easily removed by lifting up. (See Fig. 16)

Figure 15

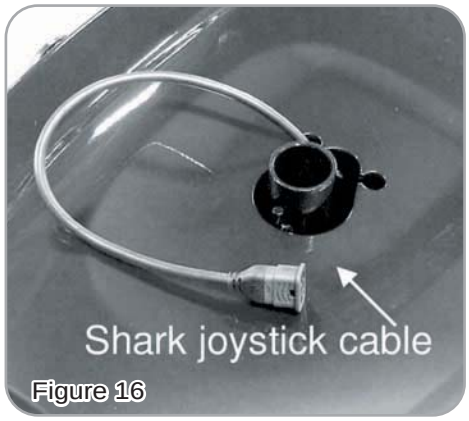

Figure 16

Re-assemble :

To re-assemble your power chair, you can repeat disassembly directions in reverse.

INSTALLATION OF BATTERIES

Please follow instructions below to install batteries.

1. Refer to page 11 on "DISASSEMBLING / RE-ASSEMBLING YOUR POWER CHAIR" before installing batteries.

2. Make sure free-wheeling lever is set to "D" to engage motors.

3. Once and body shroud are removed, locate Velcro straps that hold batteries in place. (See Fig. 17)

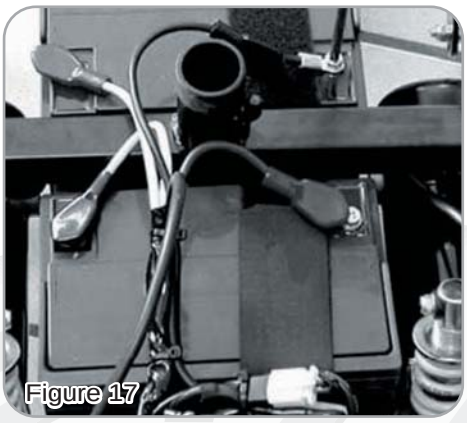

Figure 17

4. Locate nuts and bolts that fasten battery cables to battery and then put them aside.

5. Install new batteries, facing each other.

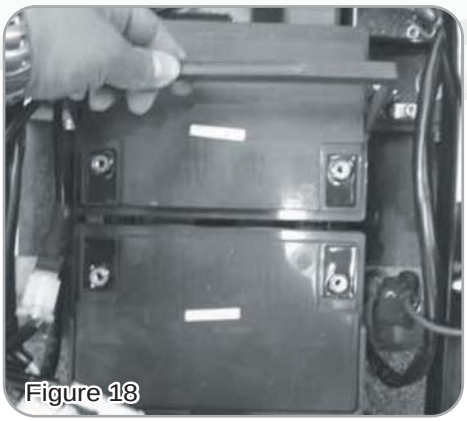

Figure 18

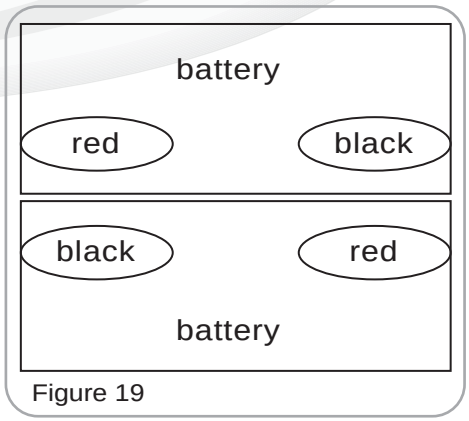

Figure 19

6. Locate one side of cables and make sure wire, marked (+), is connected to the closest positive (red) battery terminal (See Fig. 18). Next, secure wires with nuts and bolts provided (See Fig. 19). And then use a 10 mm wrench to tighten hardware (See Fig. 20).

7. On the same cable, connect wire, marked (-), to the closest negative (black) battery terminal on another battery (See Fig. 18). Next, secure wires with nuts and bolts provided (See Fig. 19). And then use a 10 mm wrench to tighten hardware (See Fig. 20).

Warning: DO NOT attach one set of cables to the SAME battery, as it will not function correctly.

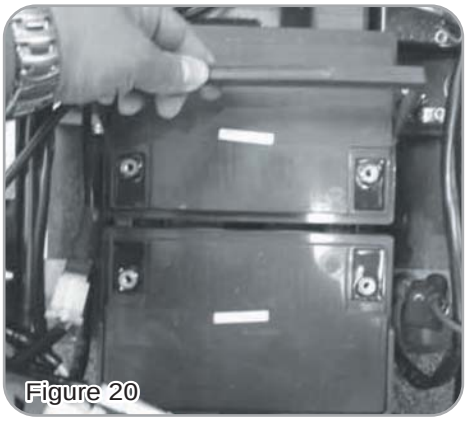
Figure 20

8.Follow steps 6 - 7 for another side of the cables. (See Fig. 21)

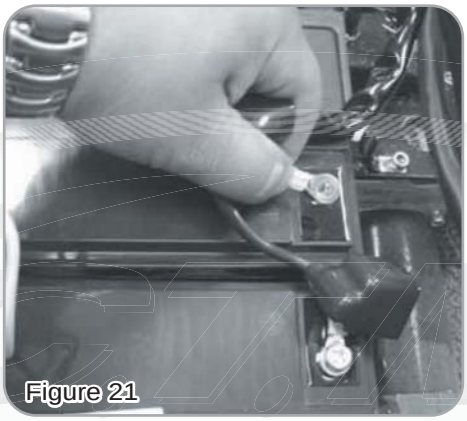
Figure 21

9.Make sure battery cables are tight and use Velcro strap to secure batteries in place. (See Fig. 22)

Figure 22

⚠ The stickers on frame should match battery cables (negative and positive).

10.Re-assemble shroud and seat once above is completed.
(Refer to page 11," DISASSEMBLING / RE-ASSEMBLING YOUR POWER CHAIR" for guidance).

CHARGING THE BATTERIES

Your C.T.M. power chair is equipped with two, service free 12V 36Ah rechargeable batteries and one 24V/3A on-board charger. Batteries must be charged before using power chair for the first time and it is recommended to be charged up to 8 - 14 hours after each day's use. Be sure power switch is in OFF position and free-wheeling lever is in "D" position.

1.Insert charger cord into charger output at rear of power chair.

Figure 23

2.Plug the other end of power cord into a standard electrical wall outlet.

3.The purpose of ammeter is to indicate how much capacity is needed to fully charge batteries. Once charger is warmed up, the ammeter needle may move up to three amps, or as low as zero amps, as a sign in charging.

4.The ammeter needle will then vibrate on the zero once the batteries are fully charged.

5.Once batteries are fully charged, please unplug power cord from wall outlet and power chair. The power cord should be stored in a safe and dry area until next use.

6.If charging your power chair for over 8 - 14 hours and it does not function, please check :
- fuse is not burned out
- power chair is turned off
- circuit breaker is pushed in
- if none of above is the problem, contact your authorized dealer.

⚠ The time needed to recharge will vary depending on depletion of batteries. Charging for longer than necessary will not harm batteries. They cannot be overcharged.

Keep in mind these rules :

- Fully charge batteries at least once a month; more if you use power chair regularly. Charge after each trip exceeding 3 kilometers / 1.86 miles.

- If storing your power chair for some time (one month or more) make sure batteries are fully charged, and on returning, charge them again before using power chair.

Batteries will only give maximum performance after power chair has been used, and batteries have been recharged up to 10 times.

For safety, please follow guidelines below.

1.DO NOT use charger if power cord is damaged.

2.DO NOT use an extension cord when charging batteries. A risk of fire and/or electric shock could be encountered.

3.DO NOT take charger apart, as this will void warranty.

CARE AND MAINTENANCE

Taking care of your power chair will keep it in top-notch condition. It is recommended that you have your dealer to provide preventative maintenance service on a regularly basis. Here are few maintenance guidelines:

BODY SHROUD:

If your power chair is dirty, use a damp or lightly soapy cloth to wipe it down. Do not use running water to wash or rinse power chair in order to protect electrical parts. Polish with an automotive liquid polish.

SEAT AND ARMRESTS:

The seat material used by C.T.M. is of high quality and will remain in good condition for many years if treated responsibly. Using a damp cloth helps clean the upholstery greatly. Please note that using power chair outdoors could lead to sun damage to upholstery material, and normal wearing and tearing is not covered under warranty.

SEAT BELT:

A damp cloth with mild soapsuds should only be used to clean seat belts. Wipe seat belts gently and remove residue. Do not use any chemical products to clean seat belts as fabric will be weakened.

⚠ An authorized dealer should handle all maintenance and repair associating with electronics, batteries, motor parts, and tires. Here are the guidelines that can be followed by authorized dealer.

FLAT SPOT (for solid tires only):

During storage period, a flat spot may occur to solid tires. Weather conditions and storage period determine the condition of flat spots. By driving power chair 20 to 30 minutes, flat spots could be eliminated.

TIRE PRESSURE (for air-filled tires only):

The condition of tires and maintenance of specified tire pressures not only influence tire life, but also effect road safety to a very considerable extent. Incorrect pressure is often a cause of tire problems and could result in an accident. The recommended tire pressure is 35 psi.

TIRE TREAD:

Inspect the tires frequently for any signs of damage, such as unusual wearing or insufficient tread depth. Tread depth should not be allowed to drop below 1 mm.

ELECTRICAL CONNECTIONS:.

Make sure battery terminals and all plug connectors are secured and firmly attached. If battery terminals are corroded, please contact your dealer for replacement.

HARDWARE:

Check that all hardwares and are securely fastened. Replace any missing hardware by contacting your dealer.

Additional Information

STORING:

Also between uses, your power chair is best stored in a dry location at room temperature.

TROUBLESHOOTING

Flash codes indicate the nature of an abnormal condition directly from the SHARK lnformation Gauge. Without the use of any servicing tools, the condition can be simply diagnosed.

Flash Code	Description	
1 bars	User Fault	Possible stall timeout or user error. Release the joystick to neutral and try again.
2 bars	Battery Fault	Check the batteries and cabling. Try charging the batteries. Batteries may require replacing
3 bars	Left Motor Fault	Check the left motor, connections and cabling.
4 bars	Right Motor Fault	Check the right motor, connections and cabling.
5 bars	Left Park Brake Fault	Check the left park, connections and cabling
6 bars	Right Park Brake Fault	Check the right park, connections and cabling
7 bars	SHARK Control Unit Fault	Check the SHARK Communications Bus connections and wiring. Replace the Control Unit.
8 bars	SHARK Poewr Module Fault	Check SHARK connections and wiring. Replace the Power Module.
9 bars	SHARK Communications Fault	Check SHARK connections and wiring. Replace the SHARK Control Unit.
10 bars	Unknown Fault	Check all connections and wiring. Consult a service agent.
11 bars	Incompatible Control Unit	Wrong type of Control Unit connected. Ensure the branding of the Power Module matches that of the Control Unit.

Other Problems :

• Power chair will not move when power is turned on :

1.Check Battery Gauge on joystick. All LED lights should be on.

2.Check Self-Diagnostic Warning Light. It should be steady; if it is flashing, see the chart on page 18 for problem identification.

3.Check all electrical connections to be sure they are tight.

4.Make sure batteries are connected correctly. Refer to "Installation of Batteries" on page 12.

5.If none of above correct problem, contact your authorized dealer.

• If charging your scooter for over 14 hours and light on charger does not change to green, then contact your authorized dealer.

SPECIFICATION

Overall Length	37.5"
Overall Width	23.2"
Overall Height	40.2"
Wheels: Front	7"
Wheels: Middle	N/A
Wheels: Rear	10"
Weight w/ Batteries	176.8 lbs
Max. Speed	4 mph
Weight Capacity	300 lbs
Ground Clearance	2.4"
Grade Climbable	8 degree
Curb Climbing	1.6"
Turning Radius	31.7"
Brake	Electro-Mechanical
Seat Width	18"
Drive Train	2-Motor Rear-Wheel Drive
Battery Pack Weight	54.5 lbs
Motor Size	DC24V / 420W 4600r.p.m
Travel Range	15.3 mile
Battery	36 Ah x 2
Charger	3A
Electronics	SHARK
Seat Type	Mid-back Swivel Seat w/ Adj. Headrest & Seat Belt

*Subject to change without notice.